

ABSTRACT OF THE DISCLOSURE

A buffer layer for promoting electron mobility. The buffer layer comprises amorphous silicon layer (a-Si) and an oxide-containing layer. The a-Si has high enough density that the particles in the substrate are prevented by the a-Si buffer layer from diffusing into the active layer. As well, the buffer, having thermal conductivity, provides a good path for thermal diffusion during the amorphous active layer's recrystallization by excimer laser annealing (ELA). Thus, the uniformity of the grain size of the crystallized silicon is improved, and electron mobility of the TFT is enhanced.